

# TUSTIN MARINE CORPS AIR STATION

## TUSTIN, CALIFORNIA

**Engineering Field Division/Activity:** SOUTHWESTDIV

**Major Claimant:** CMC

**Size:** 1,383 Acres

**Funding to Date:** \$47,772,000

**Estimated Funding to Complete:** \$101,871,000

**Base Mission:** Provided services and materials to support the operations of the Third Marine Aircraft Wing; provided operations training and weather support; operated helicopter outlying fields and air traffic control facility

**Contaminants:** Benzene, dichloroethane, ethylbenzene, naphthalene, pentachlorophenol, POLs, toluene, xylene trichloroethylene

**Number of Sites:**

**CERCLA:** 13

**RCRA Corrective Action:** 17

**RCRA UST:** 7

**Total Sites:** 37

**Relative Risk Ranking of Sites:**

**High:** 7

**Medium:** 10

**Low:** 19

**Not Evaluated:** 1

**Response Complete:** 0

**Total Sites:** 37

**BRAC II**



## EXECUTIVE SUMMARY

Tustin Marine Corps Air Station (MCAS) is located in southern California near the center of Orange County. The installation is approximately 40 miles south of downtown Los Angeles and approximately 100 miles north of the California/Mexico border. Operations such as aircraft maintenance and servicing, firefighting training and storage of petroleum products have been the biggest contributors to sources of contamination. Contaminants consist of volatile organic compounds and petroleum products primarily affecting groundwater and soil. Current operations include pollution prevention technologies to prevent further contamination.

The installation occupies approximately 1,595 acres of land, of which approximately 30 percent is currently used for agriculture. Within the last 20 years, the area surrounding Tustin MCAS has transformed from primarily agricultural land to a residential and light manufacturing neighborhood. Both surface water and groundwater are of concern in the Tustin MCAS area. Five miles downstream from the station, the Upper Newport Bay Ecological Reserve encompasses 752 acres of coastal wetlands set aside for wildlife. In addition, a 300 acre duck pond is located between Tustin MCAS and the Upper Newport Bay. Groundwater quality is of concern as Tustin MCAS and various nearby communities obtain their potable and agricultural water supplies from wells in the middle aquifer.

A Restoration Advisory Board (RAB) was formed in FY94 and has 30 members which meet on a monthly basis. The Community Relations Plan (CRP) was revised in June 1993. An information repository has been established at the University of Irvine at California (UC Irvine) and four fact sheets have been issued.

Currently, 37 sites are in the study phase. All 13 CERCLA sites are in the Extended Site Inspection (ESI) or Remedial Investigation/Feasibility Study (RI/FS) phases. An RI/FS was completed at one of the 13 sites (Site 16) in FY95. All 17 RCRA sites are in Phase III of the RCRA Facility

Assessment (RFA), a RCRA sampling visit. Site Inspections (SIs) were completed at seven Underground Storage Tank (UST) sites in FY95.

In the future, Phase III of the RFA is expected to be completed in FY96. ESIs will be completed at five CERCLA sites in FY96. RI/FSs will be completed at four CERCLA sites in FY96 and eight sites in FY97. Hot spot identification, removal and interim actions will be completed at several sites in FY96. An Interim Remedial Action (IRA) to install drainage controls at Moffett Trenches and Crash Crew Pits will be complete in FY97. Treatment of soils from the Fuel Farm and other various tank sites will be complete in FY97.

To accelerate cleanup, a thermal desorption process was selected for on-site treatment of contaminated soils. An on-site remediation project using the process was initiated in July 1995 at the Fuel Farm to accelerate the cleanup schedule for the Fuel Farm to meet the reuse priority. The process will also be used on petroleum contaminated soils at similar site areas identified during ongoing site characterization.

Tustin MCAS was recommended for closure by the BRAC II commission in 1991. Operations and activities at Tustin MCAS are expected to cease by June 1999. Due to the lack of definition of the Tustin groundwater characteristics, the California Environmental Protection Agency (Cal-EPA) and EPA did not concur with the Community Environmental Response Facilitation Act (CERFA) determination. This resulted in classifying the entire base property as Type 7. Without consideration of the groundwater, the bulk of the property is Type 1, with a few acres that can be classified under Types 5 and 6. Steps have been taken to expedite the groundwater characterization. The BRAC Cleanup Team (BCT) is taking steps to negotiate with the Local Redevelopment Authority (LRA) to determine the priority for the reuse parcels without compromising the mission requirements nor the cleanup activities. It is anticipated that Findings of Suitability to Transfer (FOSTs) will be prepared for eight parcels in FY96.

### Current Status Of Sites

■ **Studies Underway** 37

■ **Cleanups Underway** 0

□ **Response Complete** 0

100%

**TOTALS** 37

## TUSTIN MCAS RELEVANT ISSUES

### ENVIRONMENTAL RISK



**HYDROGEOLOGY** - When the installation was first developed in 1942, the area was found to be fairly marshy. The area was backfilled and regraded and an extensive surface and subsurface drainage network was installed. The drainage network is still in use today, providing runoff control at the installation. Storm drainage ditches discharge to Peter's Canyon Channel on the east side which also receives runoff from Barranca Channel on the southwest side of the base. Peter's Canyon Channel merges with San Diego Creek which feeds the Upper Newport Bay Ecological Reserve, a coastal wetlands. Wells within one mile of Tustin MCAS are primarily used for agricultural purposes, although the city has a drinking water well one and a half miles away and the Irvine Ranch Water District has two deep drinking water wells within one mile north of Tustin.

The installation lies in the Irvine groundwater basin, a subbasin of the Los Angeles groundwater basin. A shallow-deeper dual aquifer system has been identified beneath Tustin MCAS. The shallow groundwater flows generally in a southward direction in areas west of Peters Canyon Channel and to the west in the remainder of the base east of Peters Canyon Channel. The deeper or regional aquifer is believed to be 70-100 feet beneath Tustin MCAS. Groundwater levels in the deeper aquifer are generally lower than in the shallow aquifer due to extensive groundwater extraction from the deeper aquifer. The flow in the regional aquifer is to the west-southwest. Groundwater extraction beneath Tustin MCAS is currently from the regional aquifer through one well operated by the on-site farmer and is used for irrigation only. Shallow groundwater beneath the installation is currently not extracted for any beneficial use due to its high Total Dissolved Solids (TDS) content.



**NATURAL RESOURCES** - Two regional species listed as either federally threatened or potentially threatened are present in the vicinity of Tustin MCAS. The California gnatcatcher is a federally threatened species. In addition, the California least tern is an endangered species. The Upper Newport Bay Ecological Reserve, into which Peters Canyon Channel flows, was established in 1975 to preserve and enhance the saltwater marsh ecosystem. Eight species classified by California as either rare or endangered are dependent on the Upper Newport Bay. A series of marshy wildlife refuges are located immediately adjacent to San Diego Creek. Many plant and animal species settle in this wildlife refuge.



**RISK** - Baseline Human Health Risk Assessments and Ecological Risk Assessments are being conducted on a site by site basis as part of the RI/FS. Seven sites were ranked as high relative risk in the DOD Relative Risk Ranking System. The high ranking was due to contaminated groundwater for six of the sites and contaminated soil for one of the sites.

### REGULATORY ISSUES



**LEGAL AGREEMENTS** - There is a Federal Facility Site Remediation Agreement (FFSRA) currently under negotiation which is expected to be signed in early 1996. A master schedule for future CERCLA-related work is being developed to complete site remediation as expeditiously as possible. After the FFSRA negotiations are complete, the master schedule will become the basis for the enforceable project milestones schedule included as Appendix A to the FFSRA.



**PARTNERING** - The BRAC Cleanup Team (BCT) has agreed to use "team building" tools, which include frequent technical discussions, weekly telephone calls and an open door policy on communication among the various entities. Project team members are partners with the BCT in the development of the cleanup plan. Additionally, Cal-EPA/Department of Toxic Substance Control (DTSC) and the EPA have an innovative approach to share resources, thus expediting the review process, subsequently reducing total cost.

### COMMUNITY INVOLVEMENT



**RESTORATION ADVISORY BOARD** - A Technical Review Committee (TRC) was formed in August 1993. A Restoration Advisory Board (RAB) was formed in FY94 and divided into ten subcommittees to address various Areas of Concern (AOC) or interest. There are approximately 30 members on the RAB, which meets on a monthly basis. All RAB meetings are open to the public. Technical presentations to assist members in understanding complex environmental issues are given as needed.



**COMMUNITY RELATIONS PLAN** - A Community Relations Plan (CRP) was originally prepared in November 1990 for Tustin MCAS. In June 1993, the CRP was revised to reflect the community's concerns following the announcement that Tustin MCAS would be closing. Four fact sheets have been issued.



**INFORMATION REPOSITORY** - An information repository was established at the Main Library of UC Irvine. This location contains documents related to the Installation Restoration Program (IRP) process including the Administrative Record, work plans, technical reports and community relations materials, including the CRP, fact sheets, news releases and RAB meeting materials.

### BASE REALIGNMENT AND CLOSURE



**BRAC** - Tustin MCAS was identified for closure in the Defense Base Closure and Realignment Act of 1990 (PL101-510) Base Realignment and Closure (BRAC II). Operations and activities performed at the installation are currently being discontinued or transferred to other Marine Corps installations. Operations and activities are expected to cease sometime between June 1997 and June 1999. Investigation and remediation of hazardous waste sites at Tustin MCAS will continue. The communities surrounding Tustin MCAS are already considering potential uses for the land that will be available when the military leaves. They want the environmental restoration process to proceed as quickly as possible so that they will not be hampered in developing the land to suit community needs.



**BRAC CLEANUP TEAM** - The Brack Cleanup Team (BCT) was formed in FY93 and is composed of members from Tustin MCAS, EPA, Cal-EPA/DTSC, El Toro MCAS, Naval Facilities Engineering Command (NAVFAC) Southwest Division (SWDIV), City of Tustin and Regional Water Quality Control Board Santa Ana. The BCT meets regularly to address issues regarding cleanup at the installation and to expedite the process.



**DOCUMENTS** - The BRAC Cleanup Plan (BCP) was last updated in September 1995. The Environmental Baseline Survey (EBS) was published in April 1994. Environmental Condition of Property (ECP) was completed and the findings are summarized in the following table.

Environmental Conditions of Property Classification						
1	2	3	4	5	6	7
0	0	0	0	55	69	194
acres	acres	acres	acres	acres	acres	acres

Due to the lack of definition of the Tustin groundwater characteristics, the Cal-EPA and EPA did not concur with the CERFA determination. This resulted in classifying the entire base property as ECP Category 7. Steps have been taken to expedite the groundwater characterization. The BRAC Cleanup Team is taking steps to negotiate with the LRA to determine the priority for the reuse parcels without compromising the mission requirements nor the cleanup efforts.

## TUSTIN MCAS



**LEASE/TRANSFER** - Since identification of uncontaminated or clean parcels has not yet been finalized, activities for Findings of Suitability to Transfer (FOST) or Findings of Suitability to Lease (FOSL) have not been initiated. It is anticipated that FOSTs will be prepared for eight parcels in FY96, with additional transfers planned for 1997, 1998 and 1999.



**REUSE** - A land reuse plan has been developed and is expected to be final in July 1996. Although still in draft form, the LRA treats the community reuse plan as final.



**FAST TRACK INITIATIVES** - Major steps taken to expedite cleanup include: Initiation of cleanup of Former Fuel Farm Area; implementation of a single phase RI at seven IRP sites; implementation of a base wide groundwater RI; using Expedited Site Characterization as developed by Argonne National Lab; Mobilization of an on-site Thermal Desorption Unit and identification of early removal actions at four IRP sites and 27 AOCs.

## HISTORICAL PROGRESS

## FY84

**Site 1** - An Interim Remedial Action (IRA) was completed at Moffett Trenches and Crash Crew Pits in 1984 that involved sandbagging the Peters Canyon Channel to prevent contaminated groundwater from seeping into the channel, installing an extraction well and an oil/water separator and excavating and backfilling the crash crew burn pits with clean sand.

## FY85

**Sites 1-14** - An Initial Assessment Study (IAS), equivalent to a Preliminary Assessment (PA) was completed in September 1985 and identified 14 potentially contaminated sites at Tustin MCAS.

**Site 1** - In May 1985, the Southern Area Regional Water Quality Control Board (SARWQCB) issued a Cleanup and Abatement Order to stop seepage and cleanup contaminated soil at Moffett Trenches and Crash Crew Pits. A Confirmation Study, Verification Phase Report (equivalent to an Site Inspection (SI)) was completed in July 1985 and was revised in September 1986. The study consisted of interpretation of new and existing data that indicated that groundwater and soil were contaminated with petroleum products and benzene, and the organic solvents trichlorethylene (TCE), and dichloroethane (DCA).

## FY86

**Site 1** - A removal action involving the excavation and disposal of contaminated soil at Moffett Trenches and Crash Crew Pits was completed in April 1986.

## FY87

**Site 16** - In May 1987, fuel was discovered in two holes excavated adjacent to two aboveground storage tanks at the Fuel Farm Area (Site 16). The tanks were removed and the soil was confirmed to be contaminated with petroleum hydrocarbons.

## FY88

**Site 1** - A IRA involving the installation of a gunite concrete slurry wall and the construction of a french drain was completed in July 1988 at Moffett Trenches and Crash Crew Pits.

**Site 16** - A PA was completed in July 1988 for the Fuel Farm Area. The investigation found the following petroleum products: benzene, ethyl benzene, toluene and xylene in the groundwater.

## FY91

**RCRA Sites** - An Addendum to the PA (the IAS), completed in February 1991, identified 14 additional potential sites (all 14 of these sites are being studied under RCRA).

**Site 1** - An extended SI was completed in February 1991 for Moffett Trenches and Crash Crew Pits.

## FY92

**Site 16** - A removal action was completed in November 1991 for the Fuel Farm Area which consisted of removing 39 tanks.

**RCRA Sites** - Phase I of RCRA Facility Assessment (RFA) which consisted of a Preliminary Review was completed in March 1992.

## FY93

**Site 16** - An ESI was completed in September 1993 for the Fuel Farm Area.

**RCRA Sites** - Phase II of an RFA, which consisted of a visual SI, was completed in November 1992. Of the 246 Solid Waste Management Units (SWMUs) visited, 58 SWMUs were recommended for Phase III, a RCRA sampling visit. An aerial photography review was completed in December 1992, 11 Areas of Concern (AOCs) were identified and recommended for further investigation.

## PROGRESS DURING FISCAL YEAR 1995

## FY95

**Sites 8 and 9** - SI was completed for Drainage No. 2 (Site 8) and Hangar No. 1 Line Shacks (Site 9).

**Site 16** - Remedial Investigation/Feasibility Study (RI/FS) was completed at the Rail Road Track Area (formerly the Fuel Farm Area).

**Sites 1, 3, 5-9 and 11-13** - An RI/FS was initiated.

**Sites 15, 17-26 and 35-40 (RCRA sites)** - Phase III of the RFA, a RCRA sampling visit was initiated.

## PLANS FOR FISCAL YEARS 1996 AND 1997

## FY96

**Sites 6, 8, 9 and 11** - An RI/FS will be completed.

**Site 2** - Excavation of contaminated soil will be completed at the Oil Disposal Area.

## FY97

**Sites 1, 3, 12 and 13** - Four IRAs are planned. At Site 1, an IRA to install drainage controls will be completed at Moffett Trenches and Crash Crew Area.

**Sites 1, 2, 3, 5, 7, 12, 13 and 30** - An RI/FS will be completed.

**Sites 27-34** - Corrective Action Plans (CAPs) will be completed.

## TUSTIN MCAS PROGRESS AND PLANS

CERCLA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
PA	11	1						
SI	8	2						
RI/FS		1	4	8				
RD			1	1	6			
RA					7	6		
IRA	2(2)		2(2)	4(4)	3(3)	3(3)		
RC					7	6		
Cumulative Response Complete					54%	100%		
RCRA CA	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
RFA								
RFI								
CMS								
DES								
CMI								17
IRA								
RC								17
Cumulative Response Complete								100%
UST	FY94 and before	FY95	FY96	FY97	FY98	FY99	FY00	FY01 and after
ISC								
INV								
CAP								
DES								
IMP								7
IRA								
RC								7
Cumulative Response Complete								100%